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Claims

1. An apparatus for analysing the condition of a machine having a rotating shaft,
10 comprising:
 at least one input for receiving measurement data from a sensor for
surveying a measuring point of the machine; said measurement data being dependent
on rotation of said shaft;
 data processing means for processing condition data dependent on said
15 measurement data; said data processing means comprising means for performing a
plurality of condition monitoring functions (F1, F2,Fn); wherein
 at least one of said plurality of condition monitoring functions (F1, F2, Fn) is
a restricted function having a disabled state and an enabled state; said disabled state
prohibiting complete execution of said condition monitoring function; and said
20 enabled state allowing execution; wherein the apparatus is arranged to allow a
limited amount of use of the at least one restricted condition monitoring function;
and wherein at least one of said plurality of condition monitoring functions (F1, F2,
Fn) is an unrestricted function; the apparatus further comprising
 a logger for registering use of said at least one restricted condition
25 monitoring function (F1, F2,Fn); wherein
 the apparatus is arranged to change the state of a restricted condition
monitoring function from the enabled state to the disabled state when said
registered use indicates that the limited amount of use has been spent; and
the apparatus is arranged to allow execution of the at least one unrestricted function
30 irrespective of amount of use of the at least one unrestricted function.
2. The apparatus according to claim 1, further comprising
 a user interface for allowing an operator to select to request the
apparatus to perform a condition monitoring function;

5 means for checking whether a selected condition monitoring function (F1, F2, Fn) is a restricted function or an unrestricted function;

 means for causing the apparatus to perform the selected condition monitoring function (F1, F2, Fn) when the selected condition monitoring function is an unrestricted function.

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3. The apparatus according to claim 2, further comprising

 means for causing the apparatus to check whether the selected condition monitoring function (F1, F2, Fn) is enabled or disabled when the selected condition monitoring function is a restricted condition monitoring function (F1, F2, Fn);

15 wherein

 said logger is adapted to register use of the selected condition monitoring function when the selected condition monitoring function is an enabled restricted condition monitoring function (F1, F2, Fn).

20 4. The apparatus according to claim 1, 2 or 3, wherein

 the apparatus is arranged to register use of an enabled restricted condition monitoring function (F1, F2, Fn) by changing a value of a parameter (Use_F_k; Credit_par, 250).

25 5. The apparatus according to claim 1, 2, 3 or 4, wherein

 a first parameter (Use_F_k) is associated with a first restricted condition monitoring function (F_k); said first parameter (Use_F_k) being indicative of a remaining amount of allowed use for the first restricted condition monitoring function (F_k); and

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 a second parameter (Use_F_i) is associated with a second restricted condition monitoring function (F_i); said second parameter (Use_F_i) being indicative of a remaining amount of allowed use for the second restricted condition monitoring function (F_i).

5 6. The apparatus according to claim 5, wherein

said means for comparing is arranged to compare said first parameter (Use_F_k) with said first reference value, and wherein

said means for disabling is arranged to disable the first restricted condition monitoring function (F_k) in response to the outcome of the comparison of
10 said first parameter (Use_F_k) with said first reference value when the comparison indicates that all allowed usage of the first restricted condition monitoring function (F_k) has been spent; and wherein

said means for comparing is arranged to compare said second parameter (Use_F_i) with said first reference value, and wherein

15 said means for disabling is arranged to disable the second restricted condition monitoring function (F_i) in response to the outcome of the comparison of said second parameter (Use_F_i) with said first reference value when the comparison indicates that all allowed usage of the second restricted condition monitoring function (F_i) has been spent.

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7. The apparatus according to claim 1, 2, 3 or 4, wherein

the apparatus is arranged to register use of an enabled restricted condition monitoring function (F₁, F₂, F_n) by changing a value of a centralized parameter (Credit_par, 250).

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8. The apparatus according to any of claims 1 - 7, wherein:

at least one of said plurality of unrestricted condition monitoring functions (F₁, F₂, F_n) has an enabled state and a disabled state.

30 9. The apparatus according to any of the preceding claims, wherein:

said logger is adapted to register use of a first restricted condition monitoring function at a first rate; and

said logger is adapted to register use a second condition monitoring function at a second rate.

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10. The apparatus according to claim 9, wherein

said second rate is such that use registered at said second rate causes a higher cost per unit of usage than use registered at said first rate.

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11. The apparatus according to claim 9, wherein

said second rate is such that use registered at said second rate causes a lower cost per unit of usage than use registered at said first rate.

12. The apparatus according to any of the preceding claims, wherein:

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said registered use is a parameter indicative of a number of executions of at least one of said restricted condition monitoring functions (F1, F2,Fn).

13. The apparatus according to any of claims 9-11, wherein:

said registered use is a parameter indicative of a duration of time.

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14. The apparatus according to any of the preceding claims, further comprising:

means (50, 60, 70, 80, 132, 16) for receiving a key code associated with at least one of said restricted condition monitoring functions;

means (50, 60, 70, 80, 132, 16) for performing a key verification

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procedure;

means (50, 60, 70, 80, 132, 16) for causing said analysis apparatus (14) to change a parameter controlling an amount of allowed use in response to said received key code when said key verification procedure results in an acceptance of said received key code.

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15. The apparatus according to any of the preceding claims, wherein

said plurality of condition monitoring functions (F1, F2,Fn) includes two or three or more functions selected from the group consisting of: vibration

5 analysis, temperature analysis, shock pulse measuring, spectrum analysis of shock pulse measurement data, Fast Fourier Transformation of vibration measurement data, graphical presentation of condition data on a user interface, storage of condition data in a writeable information carrier on said machine, storage of condition data in a writeable information carrier in said apparatus, tachometering, imbalance detection,
10 misalignment detection.

16. The apparatus according to any of claims 1 -14, wherein

said plurality of condition monitoring functions (F1, F2,Fn) includes a function for imbalance detection.

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17. The apparatus according to any of the preceding claims, wherein

said plurality of condition monitoring functions (F1, F2,Fn) includes a function for balancing.

20 18. The apparatus according to any of the preceding claims, wherein

said plurality of condition monitoring functions (F1, F2,Fn) includes a function for misalignment detection.

19. The apparatus according to claim 18, wherein

25 said plurality of condition monitoring functions (F1, F2,Fn) includes a function for alignment.

20. The apparatus according to any of claims 1 - 19, further comprising:

30 a communication port (16); wherein

said apparatus is adapted to be capable of delivering data indicative of said registered use on said communication port (16).

21. The apparatus according to any of claims 1 - 20, further comprising:

- 5 key reception means adapted to allow further use of said data processing means in response to reception of a first key.

22. The apparatus according to any of claims 1 - 21, further comprising:

- key reception means adapted to allow further use of a selected one of said condition
10 monitoring functions (F1, F2,Fn) in response to reception of a key associated with said selected function.

23. The apparatus according to claim 21 or 22, wherein:

- said key reception means includes a communication port (16); and
15 said key includes a key word comprising information indicative of an amount of usage to be allowed.

24. The apparatus according to any of claims 1 - 23, further comprising:

- means for allowing an operator to indicate a desire to obtain an increased
20 amount of use of a selected condition monitoring function (F1, F2,Fn);
means for generating a usage request message so that it includes information identifying said selected condition monitoring function (F1, F2,Fn).